

[illegible]

## 1. EDITORIALS

Brian's Corner - What this Newsletter is about ..... 1

## 2. BULLETINS

The ARRL Letter, Vol 8, Num 8, April 21, 1989 ..... 2

RAIN Bulletin ..... 8

### 3. ARTICLES

The Story of Digipeter Rabbit ..... 9

Central Indiana Ham Info ..... 13

Mods for Yaesu FT-727R By Mark Huff, WA4DHY ..... 15

Packet Radio Tutorial By:Scott Loftesness W3VS ..... 17

Illinois Ham Radio Tax!! .....	25
--------------------------------	----

Amateur Radio News

Page i

Volume 1, Number 1

April 30, 1989

=====

E D I T O R I A L S

=====

In this, the first issue of The Ham Radio News, I have decided to use articles that have been previously published and passed around on the various Ham related BBS systems in the United States and Canada. I have every intention to publish this newsletter on a bi-weekly basis, posting it in the Fidonet where it can be file requested from 1:231/30, and also uploading it to GEnie's Radio Roundtable. Your contributions are needed to keep this newsletter alive and growing. I promise to publish anything submitted, be it Pro-Code, Anti-Code, Anti-ARRL, Pro-ARRL, or even criticism of this new publication. There is to be NO CHARGE for this newsletter, with the exception of the per hour/use fee that many systems charge for general access and downloading. Anything printed in this newsletter may be reprinted in it's entirety, providing the author or authors are given full credit for their work. If you do not want to upload

articles for the newsletter, then you may also send them to me via the Postal Service in either hard copy format, or on standard IBM 360K formatted diskettes. I welcome any and all feedback regarding the format of this newsletter. The views expressed in this newsletter will not necessarily be those of myself, nor will they necessarily be the views of any assistant editors that we may pick up at a later date.

Brian Murrey - Editor KB9BVN

Amateur Radio News

Page 1

Volume 1, Number 1

April 30, 1989

=====

B U L L E T I N S

=====

Published by: The American Radio Relay League, Inc.  
225 Main St.

Newington, CT 06111

Editor: Jay Mabey, NU0X

Material from The ARRL Letter may be reproduced in whole or in part, in any form, including photoreproduction and electronic databanks, provided that credit is given to The ARRL Letter and to the American Radio Relay League, Inc.

#### PART 15 LOW POWER DEVICE RULES ADOPTED--INCLUDES 4 HAM BANDS!

On March 30, the FCC adopted its First Report and Order in General Docket 87-389, amending Part 15 of its rules governing radio-frequency devices, which, because of their low power, are not required to be licensed.

The Order was released April 18, too late to be used in this issue of the ARRL Letter. The information here is drawn from the official presentation at the FCC open meeting, the press conference which followed and from ARRL Washington Coordinator Perry Williams, W1UED.

There's good news, bad news and ghastly news. The good news is that the leakage permitted from some non intentional radiating devices (a broad class of devices including radio and TV receivers, VCRs, stereo equipment and the like) will have to be reduced to the more stringent limits now permitted to Class B computing devices which are used in the home.

The bad news is that non compliant devices of this type are "grandfathered" for ten years! Existing TV tuners, for instance, can be designed, built and sold for another decade, having to observe only today's radiation limits. Though the FCC didn't say a word about RFI to consumer devices, the improvements eventually made in front ends of TVs and VCR/TV combinations should result in improved RF rejection, and thus less likelihood of RFI complaints, but we'll have to wait until the next century to know!

The ghastly news is that the FCC has adopted seven new "consumer bands" where intentional radiating devices, such as home security systems, garage-door openers, wireless stereo speakers and TV "wireless rabbits" (devices which transfer programs to other TVs and VCRs throughout the house) may operate with higher power than otherwise would be permitted. Four of the specified bands, supposedly selected because Industrial, Scientific and Medical (ISM) devices already operate there, are allocated to the Amateur Radio Service on a primary or secondary basis.

These bands are: 902-920 MHz, 2400-2483.5 (the amateur band here is 2390-2450 MHz), 5725-5875 MHz (hams have 5650-5925 MHz) and 24.00-24.25 GHz (of which 24.00-24.05 is exclusively amateur, the remainder shared).

Existing intentional radiating devices which do not comply with the new technical limits are grandfathered for three years in the design phase, five years for importing and marketing. The new devices, including "TV rabbits" and remote speakers, must comply with the standards set out in the Order from the start. with RFI issues at all. Manufacturers are not required to include instructions on dealing with interference in consumer guides furnished with their equipment. The only gesture the FCC made toward warning the public about interference is a label stating that the device must not cause interference to any licensed radio service and must accept interference which occurs to it from such services. The second part of this label is not required on radio and TV receivers. Two days after the FCC Order was adopted, the ARRL Executive Committee voted to seek reconsideration and whatever injunctive relief is necessary to protect amateur interests.

#### 1989 DARA AWARD WINNERS NAMED

The Dayton Amateur Radio Association (DARA) HamVention Awards Committee has named Bill Pasternak, WA6ITF, as its 1989 Radio Amateur of the Year. Pasternak was chosen, according to HamVention General Chairman Bill McNabb, WD8SAY, based on "his continuing interest in the promotion of Amateur Radio, his direct participation in the Westlink Amateur Radio News Service, as the author of Amateur Radio articles and books and as the producer of Amateur Radio related videos including The New World of Amateur Radio..."

Chosen as the winner of the Technical Excellence Award is Byron Goodman, W1DX. Goodman was honored for his involvement in the early days of the development of Amateur Radio single-sideband communications and for his founding of the ARRL DXCC program.

The 1989 Specific Achievement Award goes to Phil Karn, KA9Q,

(see ARRL Letter Vol. 8 No. 7, page 3) for his work in the development of packet-radio software and his numerous writings on the use of computers in Amateur Radio. Karn was also recognized for his ongoing technical volunteer work with AMSAT-NA.

Presentation of awards will be made at the annual DARA Awards Banquet that will take place on Saturday evening, April 29. 1984 Radio Amateur of the Year Dave Bell, W6AQ, is scheduled to be the keynote speaker.

Amateur Radio News

Page 3

Volume 1, Number 1

April 30, 1989

#### CRRL RESPONDS TO DOC DEREGULATION PROPOSAL

The Canadian Radio Relay League (CRRL) has responded to the DOC's deregulation proposal. In its submission, CRRL indicated that the deregulation would meet many present and future needs of the Canadian Amateur Service.

CRRL However, expressed the following concerns as well: First; the proposal specified a 6-kHz maximum bandwidth for the 10.100 - 10.150 MHz band. This would allow SSB operation which could interfere with fixed stations that are primary users of this band. Such interference could cause amateurs to lose the band worldwide. CRRL asked DOC to specify a maximum bandwidth of 1 kHz.

A second CRRL concern was DOC's proposal allowing an amateur to establish a home, portable and mobile station under one call, but not to operate these concurrently. CRRL asked DOC to permit this again so amateurs operating computer-controlled BBSs while, say, operating mobile, would not have to get a second station license and call.

Thirdly, CRRL asked DOC to continue issuing VE0 calls for stations on ships in international waters.

The final concern voiced by CRRL noted that deregulation, specifically deregulation of mode subbands, could upset the equilibrium between the Canadian and US Amateur Radio communities. If Canadian amateurs came to understand that, under deregulation, they were free to operate any mode on any frequency in the amateur bands -- without regard for the

international Amateur Radio community -- there could be reaction in the US which would result in expansion of US phone subbands. CRRL asked DOC to emphasize to amateurs the importance of observing voluntary band plans developed by the CRRL.

#### W1AW OPEN HOUSE SCHEDULED

Open house! The ARRL HQ building will be open Sunday, June 11, from 10 AM to 4 PM. If your club or group wants to schedule a visit, please notify Membership Communications Services at HQ. Be sure to bring a copy of your license if you'd like to operate W1AW, however, operating time may be severely limited due to construction.

The Newington Amateur Radio League (NARL) is sponsoring their annual hamfest and flea-market the same day as the W1AW open house. The festivities will be held at the Newington High School between the hours of 9 AM and 2 PM, with "guide service" to HQ provided.

#### HF PACKET RADIO COOPERATIVE DESIGN INITIATIVE

The ARRL has announced the creation of a new project to develop the next generation of modems and protocols for HF packet radio

transmission. The project will coordinate the efforts of Amateur Radio designers whose proposals are adopted by the ARRL. Modest funding will be available for reimbursement of approved direct out-of-pocket expenses relating to the development of prototypes, but not labor, overhead or other costs.

Overall funding for this project is to come from two sources. One is from the ARRL Technology Fund, which welcomes individual and corporate contributions. Also, the League has applied to the Federal Emergency Management Agency (FEMA) for a small grant to help underwrite this project.

Serious designers interested in participating in this development project may obtain further information from Lori Weinberg at ARRL HQ. General information concerning this project may be found in the May issue of QST on pages 54-55.

The Commission has named John Kamp, currently Director of Public Affairs, as the FCC's first Inspector General.

The newly created office of Inspector General is one of 33 such offices created by the Inspector General Amendment Act of 1988. Kamp's responsibilities will include the conduct and supervision of audits and investigations relating to the programs and operations of the agency; recommending policies for activities designed to promote economy, efficiency and effectiveness, as well as to prevent and detect fraud and abuse in agency programs; and to keep Congress fully informed about any problems or deficiencies within the agency.

Kamp joined the Commission in 1980 as a staff attorney in the Policy and Rules Division, and since has held several legal, policy and public liaison positions throughout the agency. Kamp has also served on the personal staffs of Commissioner James Quello, former Chairman Mark Fowler, and former Mass Media Chief James McKinney.

BBC IS OFF 17 METERS!

There is good news for 17 meter fans! The BBC has vacated its 18.080 MHz broadcasting frequency when it shifted to the spring schedule. Their new frequency is 17.640 MHz. David Evans, G3OUF, of the Radio Society of Great Britain (RSGB) contacted BBC at the ARRL's request and reports that the move is intended to be permanent.

ARRL MEMBERSHIP FIGURES ARE UP

Once again ARRL membership figures have increased over last year's totals:

Amateur Radio News

Page 5

Volume 1, Number 1

April 30, 1989

Division =====	1988 =====	1989 to date =====
Atlantic	15,276	15,822
Central	11,671	12,149
Dakota	3,163	3,341
Delta	5,869	6,227



Great Lakes	12,918	13,539
Hudson	9,713	9,938
Midwest	6,930	7,123
New England	10,899	11,395
Northwestern	8,229	8,909
Pacific	9,671	10,187
Roanoke	9,618	10,142
Rocky Mountain	4,357	4,596
Southeastern	13,862	14,515
Southwestern	13,463	14,154
West Gulf	10,069	10,515

Total membership figures show 158,448 this year compared to 151,361 at this time last year!

#### DOVE MICROSAT SCHEDULED FOR LAUNCH

The Digital Orbiting Voice Encoder (DOVE) MicroSat will be launched from French Guyana in Fall 1989 by the European Space Agency (ESA) aboard an Ariane 4 launch vehicle. DOVE is sponsored by AMSAT's Brazilian counterpart, BRAMSAT, and its sun-synchronous orbit will allow ground stations to hear two morning passes, transmitting on 145.970 MHz. DOVE will begin an Amateur Radio educational project that will last one year and include short messages expressing school student's wishes for peace in the world to be transmitted via DOVE's voice encoder. For further details contact:

Rich Ensign, N8IWJ,  
421 N. Military,  
Dearborn, MI 48124,  
313-274-1718 (home)  
313-278-0900 (school).

#### RSGB CALL FOR PAPERS

Anyone interested in presenting a paper at the second Radio Society of Great Britain (RSGB) Data Symposium should contact Mike Dennison, G3XDV, at RSGB HQ as soon as possible. The Symposium is to be held concurrently with the AMSAT-UK Space Colloquium on July 28-30. Further information may be obtained by writing C/O Lambda House, Cranborne Road, Potters Bar, Hertsfordshire, EN6 3JE, England.

FIRST TEN 17-METER 'WAS' AWARDS Congratulations are in order to the first ten amateurs to earn Worked All States (WAS) on the 17-meter band. The award winners are:

- 1) Christopher M. Merchant, KA1LMR
- 2) Joseph Reisert, Jr., W1JR
- 3) Steven R. Buerger, KD6PY
- 4) Charles A. Brown, N5CB
- 5) Walter T. Qualls, W5ERG
- 6) Raymond C. Baldwin, WB7OHF
- 7) Theodore H. Raschick, W0RGT
- 8) Richard I. Little, KY9L
- 9) Carl D. Hagler, K5CKQ
- 10) Thomas O. Thorburn, KA1POP

PHIL SAGER, WB4FDT, LEAVES HQ

Phil Sager, WB4FDT, who has conducted the Happenings and League Lines columns in QST for over 3 years, is leaving HQ to attend graduate school at Louisiana Tech University in Ruston, Louisiana. Phil was also ARRL Letter Editor in 1986-87, and has been in charge of keeping The FCC Rulebook up-to-date since coming to HQ in 1986. During the mid-1970's, Phil worked in the former Amateur and Citizens Division of the FCC in Washington, DC -- the only League staffer to work at the FCC in that capacity -- and served as Virginia Section Manager from 1982-84. Good luck Phil!

The RAIN Dialup Service (R.D.S) provides programming for both hams and communications devotees. Produced by RAIN, the Radio Amateur Information Network Foundation, the R.D.S. updates Fridays at (312) 299-INFO from Des Plaines, IL.

The current edition will be on line from Apr. 28-May 4, 1989, and contains the following: Mike Anderson, WV7T, talks about taking the radio shack into the local Radio Shack; and a 220 update from "220 Notes" editor, Art Reis, K9XI.--14 minutes of QUALITY ham radio programming, that YOU are encouraged to retransmit, as authorized by FCC regulation 97.113-D2.

GIVE THE R.D.S. A TRY!

Additional RAIN programming can be heard on the HF ham bands: The IARN, International Amateur Radio Network, airs a 45-minute program 5 times each day simultaneously on 3975 KHz (LSB); 14275, and 28475 KHz (USB) at these UTC times: 1100, 1300, 1700, 2100, and 0000. When the IARN is activated on 14.275 during emergencies, the program may be moved down to 14.265 KHz (3975 and 28475 are unaffected.) Often there is a live "net" on 14.275 following the broadcasts. There are two additional Sunday transmissions: on 3890 KHz (AM) at 2200, and 7290 KHz (AM) at 2300. The IARN program is transmitted by Glenn Baxter, K1MAN, from Belgrade Lakes, ME.

The GATEWAY RADIO NEWS LETTER is transmitted by Vern Jackson,

WA0RCR, from Wentzville, MO. It typically lasts an hour, and can be heard on 1860 KHz (AM) on the 160-meter band at these UTC times: Sat.-Thurs. at 2200; Sundays at 1200, and 1900; Tue. at 0930; and Thurs. (combined with a live "net") at 0100.

If you know of other HF ham radio programs, let me know, that I may update this list.

FREE HAM RADIO PROGRAMMING. if you are looking for ham radio programming on cassette for use on a local net, or for your own information, The RP REPORT is now available FREE of charge. Simply send a blank C90 cassette along with an SASE and enough postage for 2 ounces for each month you wish to receive this program service. There are 4 RP REPORTS per cassette, one cassette per month. Produced by Hap Holly, KC9RP, The RP REPORT is Available from the RAIN Foundation, P.O. Box 2565, Des Plaines, IL. 60017.

=====

A R T I C L E S

=====

A No Code Fable By Frank  
Terranella, N2IGO

Once upon a time, in the far-away kingdom of Radio, there was a peaceful valley called Hamville, inhabited by a group of rabbits. Hamville was originally settled by the Whiskey family, and the patriarch of that family was an old hare called Charlie Whiskey.

Charlie Whiskey was a farmer by trade. He came to the beautiful valley of Hamville when it was all open meadows. He saw the potential for farming the vacant land and over time he developed a thriving carrot plantation. Charlie Whiskey's carrot plantation was the envy of all the inhabitants of the kingdom of

Radio. He succeeded year after year in producing a bumper crop of carrots. All the other residents of the kingdom came to Charlie for advice on planting carrots. Charlie would always tell them, "The secret's in developing a good ear." No, Charlie didn't have superior hearing, but he had developed a very special skill. You see, Charlie picked his carrots with his ears.

In fact, Charlie had worked hard at perfecting this skill and was able to harvest at better than 20 carrots a minute. All of Charlie's family learned to pick carrots with their ears. Soon they were all picking at better than 20 carrots a minute. Charlie was so proud of his special skill that he insisted that everyone who came to work at Hamville first show that he could pick carrots with his ears. Charlie would not give new settlers any land unless they could demonstrate to his foreman, Victor Echo, that they could pick at least 5 carrots a minute with their ears. When they could pick 13 carrots a minute, Charlie gave them more land to work. When they were able to pick carrots by ear at the rate of 20 a minute, Charlie made them full citizens of Hamville.

This process of learning to pick carrots with your ears went on for sometime. In other parts of the kingdom of Radio, other rabbits began to pick carrots by ear. However, there were some noisy ducks, known as the Quackers, who lived in the community of Good Buddy. They used their mouths to pick their crops instead of their ears. They had much larger mouths than the rabbits and saw no need to use their ears. The rabbits all looked down on the Quackers. "We must always require ear harvesting skills for entry into Hamville," they said. "That way we will keep out those noisy Quackers." So everyone who came to Hamville had to learn how to pick carrots by ear if they wanted to stay. Charlie Whiskey was adamant about that. "If you don't want to learn the skill of ear harvesting then go work in Good Buddy with the Quackers," he would say.

And so the years passed, and new methods of farming were developed. These new methods were easier to learn than ear harvesting, especially for the animals who didn't have the big ears that the rabbits had. What's more, the new methods were just as efficient as ear harvesting. As time went by, fewer and fewer of the young animals were willing to learn the skill

of ear harvesting. The population of Hamville began to dwindle. All the residents of Hamville were getting on in years. To make matters worse, there were new neighbors nearby who coveted the beautiful open farmland of Hamville. They wanted to come in and turn it into commercial uses like shopping centers. And worst of all, the pollution from the Quackers, the other Rabbits, and the Mice (known in Hamville as the QRM group) was having an adverse effect on farming in Hamville. The future looked bleak indeed.

Then, one day, a stranger called Digipeter Rabbit came to Hamville. He was an educated rabbit who had studied at the School for Scientific Bunnies (SSB). He had majored in Farm Mechanics and knew all of the latest scientific agricultural methods. But for all his education and know-how, there was one thing that Digipeter could not do. He could not master the skill of picking carrots with his ears, and since he already knew how to pick carrots more efficiently with new scientific methods, he was not interested in learning.

Charlie Whiskey was outraged. "What do you mean you won't learn to pick carrots with your ears? Why, we in Hamville have been picking carrots that way for 75 years. It's a tradition here. It shows that we're special and that we're better than the Quackers. If you don't have the desire to develop a good ear, then we don't want you here in Hamville." But Digipeter was adamant. He saw no reason to learn an obsolete skill just to stay in Hamville and he refused to even try. Charlie Whiskey took the matter to the Ancient Royal Rabbit League, which he had founded. The ARRL decreed that everyone in Hamville must learn to pick carrots with his ears or be banished. And so Digipeter Rabbit left Hamville and founded his own village called Techietown.

Soon, all the young animals in the land of Radio were flocking to Techietown. But Digipeter had his own entrance requirement. A good ear and a good memory were not enough for him. No one could stay in Techietown unless he could demonstrate technical knowledge, understanding and ability, and the desire to contribute to the advancement of Techietown.

Digipeter encouraged all the residents of Techietown to experiment in the cultivation of new unexplored lands, never before farmed. Digipeter showed them how to overcome pollution problems. He showed them how to use the land they had more efficiently. Digipeter even perfected a method of farming which allowed a number of rabbits to farm the same land at the same time. And while the residents of Hamville were picking 30

carrots a minute on a good day, in Techietown, harvests of 300 carrots a minute were possible. Using Digipeter's methods, and those developed by the other bright, young residents, Techietown soon became the most prosperous village in the kingdom of Radio. This did not escape the notice of the Field Carrot Council, which governed the kingdom of radio. To reward the residents of Techietown for their contributions to the kingdom, the Field Carrot Council gave Techietown more and more land to work, until its borders touched those of Hamville.

Meanwhile, Hamville was still plodding along as it always had, oblivious to the revolution in farming occurring around it. The old hares still picked carrots by ear. The Ancient Royal Rabbit League complained bitterly to the Field Carrot Council about all the new land it was giving to Techietown, but the population of Hamville continued to drop. When the Field Carrot Council gave 2 acres of Hamville property to Techietown, the residents of Hamville began, for the first time, to be genuinely concerned about their plight. Some even dared to ask the Ancient Royal Rabbit League to change its mind about the need to learn to pick carrots by ear to live in Hamville. "We need new blood here to fight off the Field Carrot Council," they said. Charlie Whiskey, now in his nineties, was furious. "We have to maintain our standards. We don't need those smart young bunnies, we need rabbits skilled in our time-honored harvesting techniques. We need rabbits who are dedicated enough to the principles of Hamville to want to learn our methods. If a rabbit really wants to live here, he'll learn our ways. If he doesn't, we don't want him. You don't want those Quackers to move here, do you?"

But by now the residents of Hamville had seen the writing on the wall. Although they genuinely enjoyed picking carrots with their ears, they realized that there were now other ways which yielded just as many carrots. And though they would probably continue to pick carrots by ear as they always had, they could no longer shun those bright young rabbits who chose a more modern method. A group of rabbits, led by an elder statesman rabbit named Elmer, who had once served in the government of the kingdom of Radio, asked the Ancient Royal Rabbit League to change its policy. The League agreed and issued a decree that henceforth ear harvesting skills would not be required to become a resident of Hamville.

When Digipeter Rabbit heard of the decree, he sent envoys to Hamville with all the latest scientific discoveries, which he shared freely with the residents. The residents of Hamville seized upon the new knowledge and soon Hamville became revitalized. Its population began to increase as young rabbits were attracted to its bountiful open farmland. The Field Carrot Council, impressed by the renaissance in Hamville, did not take away any more of its land, but actually gave some new territory to Hamville. Everyone was amazed at the new vibrancy of Hamville.

Charlie Whiskey, though sad that his beloved harvesting method

Amateur Radio News

Page 11

Volume 1, Number 1

April 30, 1989

was no longer in vogue, saw that his people were prospering and was glad. And to show that there were no hard feelings, Charlie Whiskey sent Digipeter Rabbit a packet of 73 carrots which he had picked himself -- with his ears.

The residents of Hamville rejoiced and declared a festival to celebrate their new prosperity. And over the front door of the Hamville Festival they put a banner, which read: "A bunny's worth is measured not by the skill of his ears, but by what lies between them." The residents of Hamville had learned an important lesson.

-THEEND-



=====  
Central Indiana Amateur Radio Information 12/25/88  
=====  
Hit P to pause, S to stop, any key to resume....  
=====

Indy Club info  
-----

Indianapolis Radio Club - founded 1914

Meetings on the second Friday of each month except July and August.  
Meetings start at 7:30pm and are held at the Missions Buliding at  
222 South Downey Ave. in Indianapolis. Licensed or not, all welcome  
to attend.

President Michael L. Galloway WD9AVQ  
-----

## American Red Cross - Indianapolis Chapter

Formed in the mid 60's as a result of the Halloween Coliseum disaster. No dues are charged, however members of this club are expected to donate time in four club related activities a year to sustain active member status. A complete station is maintained at 441 East 10th Street and is capable of worldwide communications. The station is opened to all members 24 hours a day. The club sponsors Novice training beginning the first Monday after Labor Day and classes run 10 weeks. The first Monday after New Years begins the Tech/General courses that run 12 weeks. All classes are from 7:00pm to 9:30pm and there is NO CHARGE. The club meets on the second Tuesday of every month at 7:30 in the Red Cross Chapter house. Call 317 634 1441 for more information.

-----

## Harrison Amateur Radio Club - Building 809 Ft. Harrison IN 46226

Founded in 1984 this club has focused on bringing new hams into the hobby through courses offered at no charge. Currently they have over 50 members and over 125 amateurs have gotten their tickets through the training that this club offers. Meetings are held the fourth Tuesday of every month at 7:30pm. Information about the club and talk-in to the clubhouse can be found on the 443.25 and 146.76 repeaters. For further information contact Bob Blankenship at 317 482 5480 or Rick Viehe at 317 542 0741.

-----

## Midstate Amateur Radio Club

This club has a Novice class starting on February 2nd, 1989 and these classes will be held from 7:00pm to about 9:30pm. The instructor is Dave Wendt KA900H. Courses will be held at University Heights hospital located at 1402 E. South Co. Line Road. For more information contact Dave at 784 1044 day or night. This club also has a repeater

in operation on 146.835/- .600 Mhz. The classes are NO CHARGE.

-----

## Other Central Indiana Clubs

=====

## Boone County Amateur Radio Club

This is a fairly new group, formed December 3, 1987. This club also sponsors a Novice course and the meetings are held the first Thursday of the month at the Lebanon Cable TV office located behind the Preston store on North Lebanon Street. Contact Bob Blankenship at 482 5480 or Mike Ottinger at 482 1866 for more info.

-----

#### Madison County Amateur Radio Club

The club address is RR4 Box 417, Alexandria IN 46001. This club meets the first Monday of the month. Dues run \$10.00/yr. Contact Frank M. Dick III at 642-1237 for further info.

-----

For more details on the Central Indiana Radio scene, purchase a copy of the 1988 Amateur Radio Directory from the Indpls. Radio Club. This directory is given away but a \$5.00 donation for the continuation of the project is expected. (Paid \$10 for mine and it's worth every penny and then some)

CPU MODS FOR THE  
YAESU FT-727R HANDHELD  
By Mark Huff, WA4DHY

Here are the CPU "modifications" known for the YAESU FT-727R handheld. As the one that most are interested in is the extended (out of band) coverage mod, here's how to "open up" your FT-727R step-by-step. (NOTE: The following instructions for extended coverage will work for both the old and new CPU versions.)

1. Remove the battery pack.
2. Locate the RAM backup switch according to your manual (this will be the switch FARTHEST away from the two small battery terminals).
3. Turn the switch off, count to 5, then turn it back on.
4. Slide the battery pack back onto the handheld.
5. Turn the handheld on. The readout should be entirely blank. If it is not, you probably did not wait long enough before turning the switch back ON, so repeat the above procedure.
6. Key in the following on the Keypad: 001111

The rig should now come to life. You will have to reprogram all the memories, as well as the repeater splits (shifts) for both bands. The display will now cover 100-199, and 400-499 MHz, but it obviously won't work over this entire range due to the inherent limitations of the circuitry. Coverage will be around 139-159, and 420-461 MHz. Also note that you must enter frequencies from the second (tens MHz) digit on. (I.E. Before the mod, getting to 146.88 MHz meant entering "6880" or "688D". After the mod you must enter "46880" or "4688D".) The reset code, to place the rig back to U.S. ham band coverage only, is 007777.

#### ADDITIONAL STUFF

There are additional CPU codes for the FT-727R, which can be used to modify it's performance in several ways. Here are all

the known codes, and how they affect the handheld. They have only been tested (with the exception of "001111") on the new CPU (late-1987 and later) model of the FT-727R:

001111: Extended frequency coverage setting. Will tune 100-199 and 400-499 MHz, but actual operating coverage is more limited (typically 139-159 and 420-461 MHz). Steps available are 5/10 KHz on VHF, and 12.5/25 KHz on UHF. Shifts on both bands are empty (0.0) by default and must be reprogrammed.

Amateur Radio News

Page 15

Volume 1, Number 1

April 30, 1989

003333: Use for this setting is unknown. Coverage is 144-154 and 430-440 MHz. Steps of 10/20 KHz are available on both VHF and UHF. Although coverage goes above 150 MHz, only keyboard entry from the one MHz digit on is available. On VHF, to go above 149.990 MHz, you must start from the upper reaches of 149 MHz and scan up above 150 MHz. Shift on VHF comes up empty (0.0), but UHF has default shift of 5.0 MHz.

005555: Possible Region 3 setting. Turns handheld into the "B1" model. Coverage is 144-148 and 430-440 MHz, with steps of 12.5/25 KHz on both VHF and UHF. Shifts are 0.6 MHz on VHF, and 7.6 MHz on UHF.

007777: Standard Region 2 (U.S.A. and Canada) setting. Makes handheld the "A" model. Coverage is 144-148 MHz on VHF, and 440-450 MHz on UHF. Frequency steps available are increments of 5/10 KHz on VHF, and 12.5/25 KHz on UHF. Shifts are 0.6 MHz on VHF, and 1.6 MHz on UHF.

009999: Region 1 (European and African) setting. Sets handheld to the "B" model. Coverage is 144-146 MHz on VHF, and 430-440 MHz on UHF. Both the VHF and UHF bands have frequency steps of 12.5/25 KHz. Default shifts are 0.6 MHz for VHF, and 1.6 MHz for UHF.

Any of these codes can be entered into the CPU by following steps 1 through 6 on the previous page, substituting the code entered in step 6 with any of the above codes. No doubt more codes exist, but these are all that have been heard of to date.

73, Mark Huff, WA4DHY

HamNet Packet Radio Tutorial

-----

by Scott Loftesness W3VS  
CompuServe 76703,407

Now that your SYSOP has begun experimenting in the exciting new world of Packet Radio, I thought it might be interesting to others here on HamNet to begin sharing a bit more of this new technology.

Recently, I've uploaded a couple of news items which have highlighted commercial applications of packet radio techniques: the Genstar system being developed by Gerard O'Neil of Princeton University and the recently announced Motorola Portable Communications Terminal. I believe these to be just the first of many announcements we will see in the coming years as the packet radio form of digital communications finds even more commercial applications.

In the meantime, we amateurs are blazing many new trails in this

technology - from the simple TNC idea to the elegant PACSAT orbiting bulletin board system. Most of the success of the amateur radio packet efforts is due to a group of true enthusiasts scattered across the United States. Leading the way were our Canadian friends to the north who developed the original "Terminal Node Controller". Doug Lockhart and his friends in Vancouver developed an 8085-based TNC in the late '70's and its popularity spread quickly as they made available the PC board and parts kits.

Pockets of packet interest rapidly developed in the Washington, DC, Tucson, AZ, and San Francisco Bay Area - to be quickly followed by new groups in St. Louis, New Jersey, and Southern California. The first ARRL Packet Radio Conference was held in October, 1981 in Gaithersburg, Maryland - and provided the first truly international amateur packet get together. Plans were reviewed - and ideas shared. One of the attendees, Den Connors, KD2S, moved off to Tucson to join a rapidly growing group of friends and formed Tucson Amateur Packet Radio. This energetic group began the creation of a completely new, "second generation" TNC - building on the best of the original work done in Vancouver.

While the Tucson group was developing the hardware for a TNC, a group led by Tom Clark, W3IWI, became concerned about the lack of any kind of amateur standard as far as packet radio protocols were concerned. The original Vancouver protocol worked fine for a small group in a single geographic area - but clearly would not support the kind of growth in packet radio enthusiasts that was expected. In addition, the onset of the Phase IIIB amateur satellite and its packet radio repeater possibilities added impetus to the need to develop a new standard.

Meeting in October, 1982, this group developed a new amateur standard called AX.25. The standard was completed just in time - it was incorporated into the original version of the Tucson (TAPR) TNC board in late 1982. Approximately 200 of the TAPR boards have been distributed nationwide - for extensive field testing of the hardware/software combination. This board has become a real hit - it worked beyond anyone's expectations and has created a tremendous additional interest in packet radio. The test phase is nearly complete - and will be followed by availability of a parts kit later this year for general

distribution through the amateur community. By this time in 1984, amateur packet activities will have grown dramatically from the several hundred current experimenters to many more amateurs - and with exciting implications for new applications using the new technology.

The TAPR TNC is a remarkable piece of equipment - and a truly elegant hardware/software design. We'll spend some time describing some of the details of this TNC. Much of this material is directly from the excellent manual which accompanied the beta test boards - and which is available from TAPR for \$15 (PO Box 22888, Tucson, AZ 85734).

The TAPR TNC is the result of a tremendous design effort by many people including Mark Baker, Marc Chamberlin WA7PXW, Pete Eaton WB9FLW, Chuck Green N0ADI, Dave Henderson KD4NL, Lyle Johnson WA7GXD, Dave McClain N7AIG, Dan Morrison KV7B, Margaret Morrison KV7D, and Harold Price NK6K, along with Den Connors.

Very few terminals or home computers contain the hardware and software necessary to attach to, and control, an amateur radio. Compatibility between such systems could obviously be a problem. Because of this, extensive testing and use of packet radio without some additional tool would be very difficult, if not impossible.

The TNC is that tool. It is connected between your terminal (or computer) and your amateur radio. Just what is it that the TAPR TNC provides? Between the interfaces to your terminal or computer and your radio is a complete microcomputer with memory and input/output devices. This microcomputer with appropriate software is used to implement the packet radio protocols. Thus any computer can be interfaced to any other computer via amateur radio using the TNC.

The TAPR TNC connects to an RS-232-C interface, found on most terminals and home computers. A parallel interface is also provided, although not supported for terminal interfacing in the initial software release. The necessary connections exist to interface the TNC to your amateur radio equipment. These connections include lines to your external speaker (or earphone) jack and the microphone jack (both for microphone audio and for push-to-talk control).

Also included is a complete modem used to convert the digital



information coming from the computer or terminal into an analog signal (a set of audio tones) which your radio can transmit. It also performs the reverse function, converting analog signals from your receiver to digital data. Because of the bandpass characteristics of many amateur radios, an active audio filter is also included in the TNC. Passive filters proved inadequate to support transmission rates of 1200 baud - a design objective.

Power for the electronics on the board required four different voltages: +5, -5, +12, and -12 volts. The TNC includes on board power supplies for these voltages and uses a custom wound power transformer designed specifically for TAPR and included with the board.

But hardware is only part of the TNC. Software is equally (if not more) important, for it's the software which makes this hardware useful in handling packet radio protocols.

The TAPR software was designed to support two interfacing requirements. The first interface is to the computer or terminal and involves processing commands and assembling data into packets. Also, packets received must be processed and formatted for display back to the computer or terminal. The second interface is the radio interface which provides two different packet communications protocols (AX.25 and the original Vancouver protocols), keying the radio, and sending proper Morse code identification using your call sign. The protocol involves accessing the shared radio channel, formatting and sending packets, receiving and deciphering packets, and filtering out packets not intended for your station.

The software is implemented on the TAPR board in read only memories (ROM's). 24K of ROM is provided on the board for this purpose, along with 6K of on-board random access memory (RAM).

The TAPR TNC beta test version sold for \$200 - a very low price for such an incredibly well-designed and engineered unit! As mentioned earlier, the initial tests using this board have been most impressive. I'll provide a more detailed description of both the hardware and software components in forthcoming tutorial messages.

We'll continue our tutorial on packet radio by reviewing in more detail the hardware and software implemented on the Tucson Amateur Packet Radio (TAPR) Terminal Node Controller (TNC).

The TAPR TNC is a self-contained, microprocessor-based device intended to act as an intelligent interface between a user's ASCII communications system (terminal or computer) and radio-based packet communications.

A 6809 microprocessor acts as the system CPU in the TAPR TNC. The 6809 is readily available and widely accepted for application in dedicated function controllers as well as general purpose low-end computers. It executes the software stored in

Amateur Radio News

Page 19

Volume 1, Number 1

April 30, 1989

the system's EPROM's.

The 6809 has an internal 2-phase clock generator and provides control, address, and data bus input/output for family peripheral devices. It has capabilities for position-independent code and is designed to support multiple stacks, making it very efficient for executing block structured high level languages such as Pascal and Forth. Information on the 6809 architecture is available in Motorola, Hitachi, and AMI literature - and in several books which are widely available in the computer sections of most bookstores.

The serial port is designed to provide a full-duplex RS-232-C interface for the user's terminal or personal computer. Full baud rate selection from 50 baud to 19.2 kilobaud is supported by the port. EIA RS-232-C levels and transition rates are implemented as well. The serial port is controlled by a 6551 LSI UART which contains an internal, software-controlled baud-rate generator. The transmitter and receiver are double-buffered and capable of interrupt-driven operation. The 6551 supports hardware flow control - allowing the terminal or computer to pace input and output from the TNC. 1488 and 1489A devices are used to translate the TTL levels from the 6551 to RS-232-C levels for the port itself.

A parallel port is also included on the TAPR board. Although not used for terminal support in the initial releases of the supporting software, it is used for certain status indications. A 6820 is used to provide two 8-bit TTL-level handshaking ports.

The system port interfaces to other devices on the TNC itself. These include a non-volatile RAM chip used to store certain of the system parameters across power-downs, DIP switches used for certain reset options, the HDLC controller chip, and an

indicator driver interface for a variety of LED-monitored system functions. Implemented using a 6522, the system port also includes timing functions used for HDLC baud rate generation, software timing functions, the CW identification, and on-board calibration of the modem frequencies. The 6522 is a very powerful LSI chip which incorporates a pair of 8-bit programmable I/O ports, four control lines (for handshaking), two 16-bit programmable timers/counters, and an 8-bit shift register. The non-volatile RAM is used to store system parameters that are not normally changed such as call sign, terminal attributes, and timing parameters, but which remain user alterable. This allows configuration changes for a given session only, or on a "permanent" basis. The system port also handles the interface to the radio push-to-talk circuitry.

A Western Digital WD1933B HDLC controller is used to implement the HDLC standard bit oriented protocol including CRC check sum and zero bit insertion. The HDLC controller interfaces to an on-board 1200 baud modem providing phase-coherent AFSK modulation (with Bell 202 compatibility) using the EXAR 2206/2211 chips. Also included is the necessary impedance

matching circuitry for interface to most popular amateur radio equipment. A 14-second hardware "watchdog" timer is inserted in series with the transmitter push-to-talk line to prevent accidental RF channel lockout which might be caused by a software error.

A unique feature of the TNC is the capability for on-board calibration of the modem tone frequencies. This is accomplished using jumpers which allow for the modem to be disconnected from the HDLC chip.

The on-board memory bank consists of six JEDEC-standard 28-pin "byte-wide" sockets. Three of these sockets are mapped for 2K static RAM's. The other three sockets are mapped as 8K EPROM or static RAM sites. The configuration supports 2716, 2732 and 2764-type EPROM's. A custom memory map PROM is included which provides the address decode for the ROM and RAM chips.

Also included on the TAPR TNC board is a user wire-wrap area - primarily to allow custom interfaces to be developed to support unusual radio interface requirements. Power busses are included in the area so that active devices may be added directly onto

the TNC board itself as may be required by the user.

This completes the hardware description of the TAPR TNC. As you can see, it's a very complete design using the latest in LSI chip technology.

I'm going to continue this series by describing the operation of the Tucson Amateur Packet Radio (TAPR) Terminal Node Controller (TNC) - and the tremendous function which has been implemented in the TNC software will become readily apparent!

The TAPR TNC operates in one of three modes:

- Command Mode
- Converse Mode
- Transparent Mode

Command mode is used to modify various software operating parameters. Converse mode and Transparent mode are both data transfer modes - supporting transmission and reception of packets across the radio link.

Command mode is automatically entered upon power-up or reset of the TNC. It can also be entered from one of the other modes by sending an appropriate control sequence from the terminal to the TNC. For example, if I'm running in Converse mode, I can get to command mode by simply entering a control-C. I can then make any operating mode parameter changes I need to, and return to Converse mode by using the CONVERS command. The flexibility the TNC provides in this regard is really outstanding. You can switch into and out of Command mode very easily - and not lose any data coming across the link.

Many of the parameters which can be altered in Command mode are

saved in the NOVRAM chip mentioned earlier in this series. This chip is an electrically erasable read-only memory - and permits me, for example, to save away my call-sign (which becomes my address in the AX.25 protocol) so that I need not reset it every time I power up. The NOVRAM really helps make the TNC startup procedure extremely simple - since most all of the parameters I have tailored have been tucked away into the NOVRAM.

In addition to the NOVRAM, the ROM contains a set of default operating parameters which can be invoked to completely reset

the NOVRAM values. This is helpful after experimenting with a number of parameters - and deciding to start over from the ground up!

To give an example of how simple it is to get the TNC "on-the-air", the following sequence of commands will take the TNC from power-up to Converse mode:

```
MYCALL W3VS    - Sets my callsign into the address field.
                  (Only necessary once!)
PERM           - Save my callsign into the NOVRAM.

CONVERS        - Enter Converse mode.

Hello Test     - Sends an unaddressed packet with the text
                  "Hello Test".

Ctrl-C         - Returns to command mode.

CONNECT K8MMO  - Requests that I be connected to K8MMO.
                  Automatically enters Converse mode if
                  K8MMO acknowledges my CONNECT request.

Hello Dave     - Sends an addressed packet to K8MMO with
                  the text "Hello Dave".

Ctrl-C         - Returns to command mode.

DISCONNECT     - Disconnect from K8MMO.
```

As you can see, operating the TNC is really a breeze. In fact, from power-up to being on the air is typically a matter of a few seconds.

Among the parameters which can be altered in Command mode are several which determine how the TNC responds to what it hears on the radio link. For example, I can tell the TNC to monitor all packets it hears - including those not specifically addressed to me. This is obviously useful for "reading the mail" on the channel! In fact, I can tell it to monitor all activity, or just activity either TO or FROM a specific station. In addition, I can tell the TNC whether I want it to become a digipeater - a digital repeater which repeats what packets addressed to another station but containing my callsign as a repeater address. (It's interesting to note that the default is

digipeat on - it's so automatic that I really don't know (other than by hearing my radio got on and off) that I'm being used as a digipeater!

I can also define the specific operating parameters for the link. Items such as the length of a packet (default of 128 bytes), whether it should send a packet when it sees a specific character (default is carriage return) or send a packet after so many seconds of inactivity from my terminal. I can also cause the TNC to automatically send a beacon every so many seconds or send it after so many seconds of no activity on the packet channel.

I've just shown a few of the features available in Command mode on the TAPR TNC. The software is extremely well done - and using the TNC is a pleasure! You immediately sense that this box was put together by folks who really understand both the hardware and the software aspects of microcomputing and communications!

Let's talk now about Converse mode. As shown in my example, I can cause the TNC to enter Converse mode by entering the CONVERS command and also by connecting with another station. The TNC will also automatically enter Converse mode whenever another station requests a connect with me! In this case, it prints out a message saying:

Connected to K8MMO

and enters Converse mode. From that point on, whatever I type is sent to the other station.

If I'm not connected to another station but enter Converse mode using the CONVERS command, my packets will be "unaddressed" and only can be copied by other stations which are monitoring all packets on the channel. This is the technique used to say "CQ" on a packet channel. For example, on my TRS-80 Model 100, I have created a CQ file which I transmit containing my name, address, callsign, station equipment, phase of the moon, etc.! To say CQ, I simply send this packet. If others are around, typically one will connect with me and our QSO has begun!

Earlier, I mentioned the digipeating mode. I can cause my packets to automatically be sent via a repeater. I simply say:

CONNECT K8MMO VIA WB4JFI-1

WB4JFI-1 is a local AMRAD repeater run by Terry Fox which is available 24 hours per day. In this case, my station sends its packets to WB4JFI-1 which verifies that they are valid packets (i.e. frame check sequence is valid) and then retransmits them to K8MMO. Neat!

Well, we've covered Command and Converse modes pretty thoroughly. Let's now talk about Transparent mode. Transparent

Amateur Radio News

Page 23

Volume 1, Number 1

April 30, 1989

mode allows you to effectively turn the TNC into a modem - i.e. it will not locally echo characters, will ignore command/control character sequences, etc. The advantage of this mode is in transferring files which might contain any of those characters. In Transparent mode, it's possible to transmit a binary file to another station. With the built-in error detection and correction of the AX.25 protocol, error-free transmission is guaranteed! It's possible to exit from Transparent mode to Command mode by sending a very specific sequence of characters (default is three control-C's sent with no other data for one second before and after). Obviously, the odds of this sequence occurring in normal transmission is very, very low - which is just what's wanted in Transparent mode.

Another use of transparent mode is in running a computer system at the other guy's station. For example, I have run the CP/M system at K1HTV in this manner - and run BASIC programs, CP/M commands such as DIR to get a file directory listing, etc. It's just like sitting at the console of that other system - with the addition of a time delay required for transmission of the packets at 1200 baud!

Well, we've pretty well covered the operational aspects of the TAPR TNC. As you've seen, it's an extremely versatile device - and provides nearly all of the functions you'd want!

You are probably a bit curious (I know I was) about the software package used in the TAPR TNC. This excellent package was written in a combination of Pascal and 6809 assembler by Harold Price NK6K, Dave Henderson KD4NL, and Margaret Morrison KV7D. The bulk of the code was written in Pascal while assembler was used for the interrupt handling and data buffering routines. The Pascal code effectively relies on the assembler code as device drivers for the hardware interfaces present on the TNC.

The combined package is over 20K of code - stored in the ROM of the TNC.

This concludes this section of the packet radio tutorial. Next, we'll describe some of the activities underway in the Washington, DC area with packet radio - and some of our plans for the future.

Amateur Radio News

Page 24

Volume 1, Number 1

April 30, 1989

-----  
- ALERT -- ALERT -- ALERT -- ALERT -- ALERT -- ALERT -- ALERT  
-----

A bill has been introduced in the Illinois State Legislature to LICENSE radio communications equipment and users BY THE STATE OF ILLINOIS. The current bill would affect citizens band (CB) transceivers and paging receivers of all kinds. However, it is reported that this bill is being amended and expanded to cover the use and possession of ALL radio communications equipment including cellular telephones, amateur radio equipment, marine radio, land mobile (the various business radio systems), general mobile (GMRS), etc.

The intent is to control the use of radio communications by persons dealing in illegal activities--primarily drug dealers.

RAIN -- RADIO AMATEUR INFORMATION NETWORK  
TRANSCRIPT OF MARCH 20,1989 INTERVIEW WITH ILLINOIS STATE  
REPRESENTATIVE SHAW CONCERNING ILLINOIS STATE RADIO LICENSE BILL  
-----



RAIN  
RADIO AMATEUR INFORMATION NETWORK FOUNDATION, INC.  
P. O. Box 2565  
Des Plaines, Illinois 60017-2565

A Not-For-Profit News and Information Service  
For The Radio Amateur

Alanson P. "Hap" Holly, KC9RP, Executive Director

Offices: (312) 827-RAIN (827-7246)  
24 Hour Program Dial-Up Service: (312) 299-INFO (299-4636)  
Note: Our Area Codes will change from (312) to (708)  
on November 11, 1989.

RAIN is affiliated with the BEAR, The Broadcast Employees  
Amateur Repeater (of Chicago)  
Transmitting on 145.15 MHz (-.600 input) (1B PL)  
News reports and requests for information may also be left on  
The BEAR Hotline 24 Hours a Day at (312) 827-BEAR (827-2327)

-----  
(C) Copyright, 1989 by the Radio Amateur Information Network  
Foundation, Inc. Due to the important nature of this  
information, permission is hereby granted to any party to  
publish or distribute the text of this interview, in whole or in  
part, by any means, printed or electronic, provided credit is  
given to the copyright holder. Audio recordings, suitable for  
use by bulletin or broadcast stations are available from the  
foundation.

Amateur Radio News

Page 25

Volume 1, Number 1

April 30, 1989

-----  
TRANSCRIPT OF A RAIN NETWORK INTERVIEW WITH WILLIAM SHAW,  
ILLINOIS STATE REPRESENTATIVE, 34th, DISTRICT (CHICAGO)  
CONCERNING HIS NEW LEGISLATION, "AN ACT IN RELATION TO CERTAIN  
COMMUNICATIONS DEVICES", WHICH WOULD PROVIDE FOR ILLINOIS STATE  
LICENSING OF CITIZENS BAND RADIOS, PAGERS, CELLULAR TELEPHONES,  
AND 2-WAY RADIO EQUIPMENT AND USERS. THE INTERVIEWER WAS  
ALANSON P. "HAP" HOLLY, KC9RP.  
-----

INTERVIEWER: "This is a RAIN weekly spotlight. Imagine paying a five dollar fee to license your Ham or CB transceiver, cellular telephone, or beeper -- and if you are caught not licensing these devices with the state you'd possibly face fines and even imprisonment. Well it's no joke, especially to State Representative William Shaw, 34th District of Illinois. Shaw wants to license CB radios, cellular phones, and beepers in Illinois. Why? Well, I spoke with Mr. Shaw about his proposal."

INTERVIEWER: "What are you proposing in this bill?"

REPRESENTATIVE SHAW: " What the bill call for is that all CB's and cellular telephones and beepers be licensed by the State of Illinois and there will be a five dollar fee dealing with the licensing of those beepers and cellular telephones and CB's. This is a bill that is aimed at drug pushers in Illinois. It's not intended to harm or hurt the CB people, but in light of a large investigation that had been made in Illinois, a lot of drug pushers are using CB radios and beepers to do their transaction with drugs. And that's what this is aimed at, not the legitimate CB people who use it for sport. While we want to license them and make sure that they have an application is because many of the drug dealers are not gainfully employed. It would be a criminal penalty attached to that application if a person lied on that application. And there again that's aimed at the drug dealer. I think that would give the police departments throughout Illinois here another tool that they need in order to fight the drug traffic in Illinois." "The police departments would be able to see a CB in a car or see a cellular telephone in a car and in many instances hear a pager, or see a pager...and certainly they know who the drug dealers are in many instances, but they just can't walk up to that person because they know that they're a drug dealer and lock them up if they have no drugs on them. But if they have this pager and they have lied on the application certainly that's reason that that person could be put in jail -- and it would be similar to the seat belt law. The police departments would not be able to stop you just because they saw a CB in your car, you would have to commit some other offense -- traffic offense."

INTERVIEWER: "With all due respect, Representative Shaw, with all the CB radios that have been floating around for literally twenty years, who needs to go out and buy a new one?"

REPRESENTATIVE SHAW: "Well that would also apply to the people that have CB radios, you would have to still apply for that license and pay the five dollar fee."

INTERVIEWER: "Ah, so there is no grandfather clause."

REPRESENTATIVE SHAW: "No, there's no grandfather clause in there, because if we grandfathered them in -- you know -- the drug dealers and the people that are using them for illegal activities still have them. Today, for a person standing by a telephone, waiting on a phone call, that's too easy for the various law enforcement agencies to check and put a tracer on those phones. But they can do this handily while they are rolling around Illinois by either CB or a pager system or cellular telephone."

INTERVIEWER: "The only problem with that argument in CB, of course, there's no way to identify a radio without actually looking at it, so how do you expect to carry that out?"

REPRESENTATIVE SHAW: "Well, we're not primarily interested in that portion of it. The only thing we want to do is know who got those -- who own those CB's and what is the purpose of the CB. All of that information would be on the application. And by some chance if that person happened to get stopped, commit a traffic violation or something, then the police would be at liberty to ask questions about a CB and whether he have a license or not."

INTERVIEWER: "OK, of course you're not just picking on CB here..."

REPRESENTATIVE SHAW: "Oh, no..."

INTERVIEWER: "You're looking at cellular and pagers. Where does Ham radio fit into this bill?"

REPRESENTATIVE SHAW: "Ham radio doesn't fit into it. I don't think the bill even talks about Ham radio."

INTERVIEWER: "Well, why not?"

REPRESENTATIVE SHAW: "Ah, because... well one of the reasons is I didn't think about it, but maybe it should be in there."

INTERVIEWER: "Well, the logical question is that if you leave

Ham radio out of the bill then you're assuming that there is no illegal activity on Ham radio, and of course that's no more true or false than CB or cellular or pagers."

REPRESENTATIVE SHAW: "Well, you're absolutely right and certainly if they're not in there then I think at this point -- because Ham operators can talk all over the world and certainly in many of the countries where drugs are coming in from -- if a

Amateur Radio News

Page 27

Volume 1, Number 1

April 30, 1989

person that was dealing in illegal activities with drugs would be able to communicate with his counterpart in so many foreign countries."

INTERVIEWER: "Of course the argument would be, well, of course Amateur Radio operators are licensed."

REPRESENTATIVE SHAW: "Licensed already."

INTERVIEWER: "Right, so what's the purpose of licensing the radios, too?"

REPRESENTATIVE SHAW: "Well, the total crux of this bill is aimed at curbing drugs. That's the total aim. And this is not to say that all Ham or people who use CB or pagers or cellular telephones are drug dealers. I'm not implying that. The only thing that I'm saying that there is a great number of people, according to various police departments around Illinois, that are using the pager system and CB's and the cellular telephones for illegal activity when it come to drugs."

INTERVIEWER: "Well, again in due respect Representative Shaw, if the drug smugglers and the pushers obtain weapons, even though they may be outlawed, the same is going to happen with CB radios and the like."

REPRESENTATIVE SHAW: "I understand that but at the same time the various police departments can see a CB radio in a car. They can see a pager on the person and they can see a cellular telephone. It's a little bit different than a weapon because you have to have an antenna to communicate with on this or the pager is going to go off -- and even though they have the solid ones -- but the police departments have a better chance of seeing that than they do these Uzi machine guns and all of the weapons that we are talking about. They are very easily hidden

but what we are talking about here, you can't hide those. Not and communicate."

INTERVIEWER: "I don't mean to beat a dead horse but if the criminal can go out on the street and buy a hand gun in Chicago, which has laws pertaining to such and governing the licensing of such, the same thing's going to happen to CB radio and I really don't see where this law is going to have any impact -- if it ever gets passed."

REPRESENTATIVE SHAW: "Well, that's what I would call up on people like yourselves, law abiding people, to support this type of legislation, because it will have an impact, because on the application we identify who the person are and we can also identify if that person is employed or whether he's not employed. And if the person lie on the application that is an offense in itself -- if you lie on the application. And certainly a person who buy a pager, if he lie about his profession on that application, it give the police department the weapon that it need. And you can then charge that fellow

Amateur Radio News

Page 28

Volume 1, Number 1

April 30, 1989

with a -- it would call for, I think a thousand dollar fine, on a second offense then it call for being put in the penitentiary."

INTERVIEWER: "This has been the RAIN weekly spotlight, with Illinois State Representative William Shaw discussing his proposed legislation that would require state licensing of CB radios, cellular telephones, and pagers. Just what are the chances of this bill passing the Illinois Legislature, and if passed, would it be struck down in the courts as being unconstitutional? And furthermore, what are the National implications of such a bill?"

(END OF INTERVIEW)

ORIGINAL TEXT OF PROPOSED ILLINOIS STATE RADIO LICENSE LEGISLATION REPRESENTATIVE SHAW PROPOSED TO BROADEN THE PROVISIONS TO OTHER RADIO SERVICES -- SEE TRANSCRIPT OF INTERVIEW OF MARCH 20, 1989 FROM RAIN -- RADIO AMATEUR INFORMATION NETWORK

86th General Assembly  
State of Illinois  
Introduced March 1, 1989 by Representative Shaw  
New Act; Ch. 38, par. 108-1

Section 1. As used in this Act:

(a) "Citizens band radio" means a radio which is capable of receiving and transmitting on some or all of the radio frequencies set aside by the Federal Communications Commission for citizens band radio communications.

(b) "Department" means the Department of Revenue.

(c) "Paging device" means a portable wireless device which is capable of receiving signals indicating that the user is being paged or that a message has been left for the user. "Paging device" does not include a cellular telephone or cordless telephone.

Section 2:

(a) Any person who owns, uses or is a lessee of a paging device or citizens band radio shall pay an annual fee of \$5 to the Department for each such paging device or citizens band radio. Upon receipt of the application and the proper fee, the department shall issue a license which shall be valid for one year. The department shall prescribe and furnish forms to be used for application for and renewal of, licenses. No person shall possess or use a paging device or citizens band radio in this State which has not been licensed in accordance with this Act.

Amateur Radio News

Page 29

Volume 1, Number 1

April 30, 1989

(b) Any person carrying a paging device or citizens band radio shall carry the license issued by the Department pursuant to this Act for that device or radio. Any person operating a motor vehicle containing a paging device or citizens band radio shall have the license in the motor vehicle. Any person required to carry a license under this Act shall display the license to a law

Section 3:

Any person who violates this Act is guilty of a petty offense.

Any person who commits a second offense or subsequent violation of this Act is guilty of a business offense.

#### Section 4:

(a) This Act does not apply to any person who is not a resident of Illinois, and this Act does not prohibit such a nonresident from possessing or using a paging device or citizens band radio in this State without a license.

(b) Any person who becomes a resident of Illinois, having obtained a paging device or citizens band radio before becoming a resident, shall obtain a license in accordance with this Act within 60 days after becoming a resident.

(c) This Act does not apply to any paging device or citizens band radio owned, held or stored for sale or lease to, or use by, others, and which is not used by the person owning, holding or storing such paging device or citizens band radio, except for demonstration purposes.

#### Section 5:

(a) The Department shall promulgate rules for the administration and enforcement of this Act.

(b) The Department may require persons engaged in the sale or lease of paging devices and citizens band radio, and persons supplying any services for users of paging devices (including, but not limited to, providing message-taking services or telephone lines), to supply sale, lease, service and other records to the Department as may be necessary or appropriate, in the judgment of the Department, for the administration and enforcement of this Act.

#### Section 6:

No citizens band radio or paging device shall be sold, leased or possessed in this State unless it bears a unique identification number, affixed by the manufacturer, seller or lessor. Such unique identification number shall be submitted with any application for, or renewal of, a license under this Act.

#### Section 7:

Section 108-1 of the "Code of Criminal Procedure of 1963", approved August 14, 1963, is amended to read as follows:

Sec. 108-1. Search without warrant.

(1) When a lawful arrest is affected a peace officer may reasonably search the person arrested and the area within such person's immediate presence for the purpose of:

(a) Protecting the officer from attack; or

(b) Preventing the person from escaping; or

(c) Discovering the fruits of the crime; or

(d) Discovering any instruments, articles or things which may have been used in the commission of, or which may constitute evidence of, an offense.

(2) No motor vehicle, or driver or passenger of such vehicle, shall be stopped or searched by any law enforcement officer solely on the basis of a violation or suspected violation of Section 12-603.1 of the Illinois Vehicle Code, or a violation or suspected violation of "An Act in relation to certain communications devices", enacted by the 86th General Assembly.



